

Freeform Search

Database:	<div style="border: 1px solid black; padding: 2px;"> US Pre-Grant Publication Full-Text Database US Patents Full-Text Database US OCR Full-Text Database EPO Abstracts Database JPO Abstracts Database Derwent World Patents Index IBM Technical Disclosure Bulletins </div>
Term:	<div style="border: 1px solid black; padding: 2px;"> (drill\$3 tool or well bore tool or wellbore tool or downhole tool or down hole tool) and (heat sink) and (heat exchanger) </div>
Display:	10 Documents in Display Format: - Starting with Number 1
Generate: <input type="radio"/> Hit List <input checked="" type="radio"/> Hit Count <input type="radio"/> Side by Side <input type="radio"/> Image	

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Search History

DATE: Thursday, April 14, 2005 [Printable Copy](#) [Create Case](#)

<u>Set</u> <u>Name</u>	<u>Query</u>	<u>Hit</u> <u>Count</u>	<u>Set</u> <u>Name</u> result set
DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ			
<u>L17</u>	(drill\$3 tool or well bore tool or wellbore tool or downhole tool or down hole tool) and (heat sink) and (heat exchanger)	10	<u>L17</u>
<u>L16</u>	(drill\$3 tool or well bore tool or down hole tool) and (heat sink) and (heat exchanger)	7	<u>L16</u>
<u>L15</u>	(drill\$3 tool) and (heat sink) and (heat exchanger)	5	<u>L15</u>
<u>L14</u>	L12 and "heat sink"	8	<u>L14</u>
<u>L13</u>	L12 and "heat exchanger"	1	<u>L13</u>
<u>L12</u>	(drill tool) same (cool\$3)	163	<u>L12</u>
<u>L11</u>	drill tool cooling	2	<u>L11</u>
<u>L10</u>	L8 and (drill toll cooling)	0	<u>L10</u>
<u>L9</u>	L8 and (heat sink or heat storage)	13	<u>L9</u>
<u>L8</u>	L5 and "heat exchanger"	338	<u>L8</u>
<u>L7</u>	L6 and "heat exchanger"	3	<u>L7</u>
<u>L6</u>	(down hole or well bore) and (thermal component or integrated circuit or thermal chip or thermal element)	342	<u>L6</u>

<u>L5</u>	(down hole or well bore) and (temperature sensor or temperature probe or thermal sensor or thermal probe or tool)	17355	<u>L5</u>
<u>L4</u>	L3 and (integrat\$3 temperature)	1	<u>L4</u>
<u>L3</u>	(down hole tool or well bore) and (temperature sensor or temperature probe or thermal sensor or thermal probe)	521	<u>L3</u>
<u>L2</u>	(down hole tool or well bore) same (integrated temperature sensor)	0	<u>L2</u>
<u>L1</u>	(down hole tool or well bore tool) same (temperature sensor)	8	<u>L1</u>

END OF SEARCH HISTORY

Freeform Search

Database:	<div style="border: 1px solid black; padding: 2px;"> US Pre-Grant Publication Full-Text Database US Patents Full-Text Database US OCR Full-Text Database EPO Abstracts Database JPO Abstracts Database Derwent World Patents Index IBM Technical Disclosure Bulletins </div>
Term:	<div style="border: 1px solid black; padding: 2px;"> parallel\$2 heat exchangers or heat exchangers parallel\$2 </div>
Display:	10 Documents in Display Format: - Starting with Number 1
Generate: <input type="radio"/> Hit List <input checked="" type="radio"/> Hit Count <input type="radio"/> Side by Side <input type="radio"/> Image	

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DATE: Friday, April 15, 2005 [Printable Copy](#) [Create Case](#)

Set
Name Query

side by
side

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C

DB=USPT; PLUR=YES; OP=ADJ

L27 parallel\$2 heat exchangers or heat exchangers parallel\$2

DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

L26 L24 and (L15)

L25 L24 and (L16)

L24 parallel\$2 heat exchangers or heat exchangers parallel\$2

L23 heat exchangers paralel\$2

L22 L20 and (down\$1hole or bore\$1hole or well\$1bore)

L21 L20 and (L16)

L20 parallel\$2 heat exchangers or serial\$2 heat exchangers

DB=PGPB,USPT,USOC,EPAB,JPAB; PLUR=YES; OP=ADJ

L19 L18 and (tool or thermal component or circuit\$2 or thermal element or electronics)

L18 L17 and (coolant or cooling)

L17 L16 and (heat exchanger\$1 or heat sink or pump)

L16 L15 and (bore\$1hole or well\$1bore or down\$1hole or formation)

(374/140,141,4,5,137,136;702/130;250/253;62/3,7;165/104.11,104.21;73/154,152.01;152.33)!

L15 [CCLS]

DB=USPT; PLUR=YES; OP=ADJ

L14 5165243.pn.

DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

L13 L3 and (microcapillary or micro-capillary)

L12 (down hole or bore hole or well bore or borehole or wellbore or borehole) same (mini pump or micro pump or minipump or micropump)

L11 (down hole or bore hole or well bore or borehole or wellbore or borehole) same (microcapillary or microtube\$1)

L10 L9 and (microcapillary or microtube\$1 or minipump or micropump)

L9 (cool\$3 borehole or cool\$3 downhole or cool\$3 wellbore)

DB=USPT; PLUR=YES; OP=ADJ

L8 5701751.pn.

L7 ROM volatile memory

L6 (volatile memory) same (ROM)

DB=PGPB; PLUR=YES; OP=ADJ

L5 L3 and (heat storage)

L4 L3 and (heat sink or heat storage)

L3 20040264543

DB=USPT; PLUR=YES; OP=ADJ

L2 L1 and (heat sink or heat cell or heat storage)

L1 5701751.pn.

END OF SEARCH HISTORY

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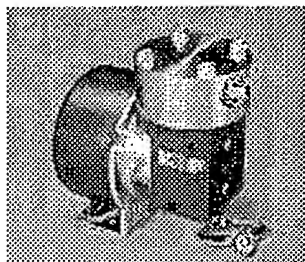
Attachment # 1

www.vacuum-guide.com

04/14/2005

mini & micro vacuum pumps / Mini- & Mikrovakuumpumpen / mini- et micropompes à vide

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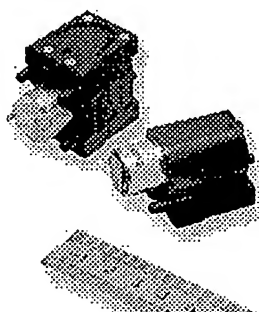


KNF Neuberger GmbH - www.knf.com - Alter Weg 3, 79112 Freiburg, Germany
Tel. +49 (7664) 5909-0, Fax +49 (7664) 2124

products:

Diaphragm pumps used in the chemical and process engineering sectors, instrumental devices, medical technology and in the laboratory.

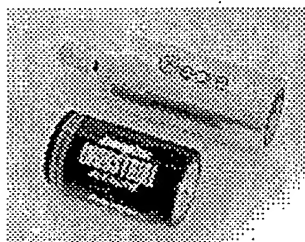
Micro Pumps (0.25 to 4 LPM), Mini Pumps (4 to 15 LPM), High Capacity Pumps (17 to 64 LPM), Explosion Proof (17 to 56 LPM)



Charles Austen Pumps Ltd. - Royston Road, Byfleet, Surrey, KT14 7NY, UK

products:

OEM vacuum pumps/compressors, laboratory pumps

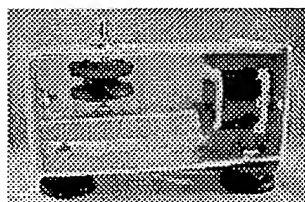


Creare Inc. - P.O. Box 71, Hanover, NH 03755, USA

Products:

Miniature Turbomolecular and Turbo/Drag Pumps

Under funding from NASA, Creare has developed the world's smallest turbomolecular battery-powered analytical equipment such as mass spectrometers.



EMMCO Electro-Mechanical Manufacturing Co., Inc. - 1351 S. Cleveland-Massillon I company profile:

Electro-Mechanical Manufacturing is a manufacturer of quality air pumps serving the in meeting the special needs of any company. We can fill your order, no matter how large with a minimum of hassle is our trademark. We can supply a pump that meets your ne

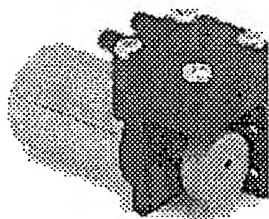


FUERGUT GERMANY - Lärchenweg 12, 88459 Tannheim, Germany

Erich Fürgut,
Products:

Our miniature-gas-pumps operate oil-free according to the rotary vane compressor principle. The diaphragm pump made of special carbon with long service life up to 10000 operating hours (depending on the load). Replacement of time without special equipment.

The pump housing is made from high-grade steel 1.4305 (if you wish: 1.4301), or made in Ryton for diaphragm pumps.



Gast Manufacturing, Inc - P.O. Box 97, Benton Harbor, MI 49023-0097, [USA](#)

Tel. +1 269.926.6171, Fax +1 269.925.8288

products:

Gast Manufacturing Inc., adds a new oil-less miniature diaphragm pump - the 3D Series miniature compressors and vacuum pumps. The new pump has maximum pressure/vacuum or 11.3" Hg (631 mbar) with open airflow of 1.18 lpm. The 3D series has a chemical resistant assembly and mounts in any plane. Various DC voltage options are available in iron or stainless steel. Applications include air sampling, gas detection, blood pressure monitors, respirator monitors, analyzers, vacuum pick and place, plus many more uses.

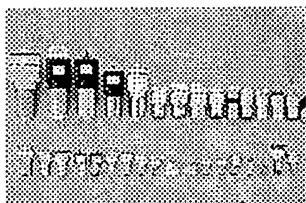


Namiki Precision Jewel Co., Ltd. - 8-22, Shinden 3 chome Adachi-ku, Tokyo, 123-8511 [Japan](#)

products: micro diaphragm vacuum pumps

Air pump series 8018Gt: flow rate 2000 ml/min, suction pressure -75...0 kPa

company profile: In the early 1970's and 1980's, Namiki's precision diamond processing was used for semiconductors, coatings, and micron precision work on mechanical components. Today's coreless motors and planetary gearheads, powerful rare earth magnets, micro fans, and medical devices and more.



OKEN, Ltd. - 706 Yanokuchi, Inagi, Tokyo 206-0812 [Japan](#)

products: mini vacuum pumps

company profile:

OKEN SEIKO was established as manufacturers of various precision devices for marine. Since then, OKEN SEIKO has been engaged in the development and manufacture of various related drive mechanisms for home automation, micro air and liquid pumps for medical



PIAB AB - P.O. Box 4501, 183 04 TÄBY, [Sweden](#)

products:

The P2010 is a self-contained multi-stage ejector pump using motive air at 1.8 bar.

It is 10 mm wide, 27.5 mm high and 50 mm long. Weighing 15 grams, it can be mounted



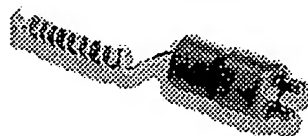
Rietschle Thomas - 7222 Parkway Drive, Hanover, MD 21076, [USA](#)

products:

Miniature Diaphragm Pumps:

Series 3013 miniature diaphragm pumps offer long maintenance-free life, quiet operation

pressure or vacuum. Six models are available to meet various needs, especially in instrumentation and air sampling: magnet or extra-long-life brushless DC motors are offered, in 3.0, 4.5 or 12.0 volt ratings. The polycarbonate pump seals, are engineered for durability and corrosion resistance. The largest Series 3013 pumps measure just 1.71 in. 1.13 oz. (32 g). Maximum air flow is rated at 1.3 ml/min. Maximum pressure is rated at 6.5 psi (450 mbar), with max. mbar).



SCHWARZER PRÄZISION MEMBRAN-U. FLÜGELZELLENPUMPEN - Steeler Strasse

Products:

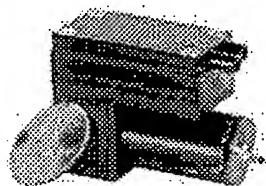
Druck- und Vakuumpumpen für die Bereiche Labor- und Medizintechnik, Mess-, Steuer- und Konsumgüterindustrie.

Miniaturvakuumpumpen und Kompressoren für Luft/Gase (Exzenter-Membranpumpen, Linear-Membranpumpen, Rotations-Membranpumpen, Miniatur-Flügelzellenpumpen)
typische Anwendungen:

Labor- und Medizintechnik, Haushaltsgeräte, medizinische Absaugung, Aerosolzerstäubung, Erzeugung von Primär- und Sekundärgasen, stationäre Gasanalysegeräte, Mess-, Steuer- und Regeltechnik, Elektrolytumlagerung, Endoskopie, Pick&Place, Blutdruckmessung, Analysegeräte, tragbare Gasmessgeräte, Pipettiergeräte, Wasserkühlung von CPUs, Laser

company profile:

Seit mehr als 30 Jahren steht Schwarzer Präzision für Kompetenz und Erfahrung bei der Entwicklung und Produktion



Sensidyne, Inc. - 16333 Bay Vista Drive, Clearwater, Florida 33760, USA

products:

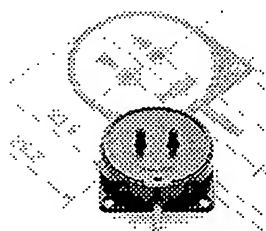
Sensidyne micro/miniature diaphragm air pumps are tailor made for use in many Original Equipment Manufacturer applications including medical, automotive, gas sampling, gas analysis and other industries. Sensidyne can also customize a pump to meet the needs of your special application.

company profile:

Sensidyne operates from a 25,000-sf manufacturing and office facility in Clearwater, FL. The facility consists of four business groups: Health & Safety, Engineered Systems, OEM Micro Air Pumps, and OEM Air Pumps.

The OEM Micro Air Pump Group designs, manufactures and sells miniature precision diaphragm air pumps directly to OEMs. Sensidyne employs 100 people in the Clearwater operation.

Sensidyne has achieved ISO 9001, EN46001 and ISO 13485 status. Sensidyne is a FDA registered facility.

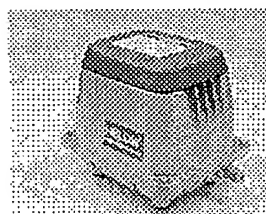


thinXXS GmbH - Amerikastrasse 21, 66482 Zweibrücken, Germany

Products:

piezo-actuated micro diaphragm pumps (membrane pumps) with passive check valve. Max. flow rate 6 ml/min, Weight 3grams, the flow rate of the pump is controlled by the pressure. Main features: self-priming, tolerant of gas bubbles, pumps liquids and gases alike, and compact.

company profile: develops microstructured components and systems



Techno Takatsuki Co., Ltd. - Japan

Products:

More than 5 million HIBLOW pumps have now been produced and found widespread use in the medical field for scientific and chemical instruments, in industrial equipment, for aquarium purpose, HIBLOW air pumps employ electromagnetically operated diaphragms, which are a compact device at low cost, and besides, it offers simple maintenance and requires minimum requirements in the market today, low noise operation and high durability are two more features of the products.

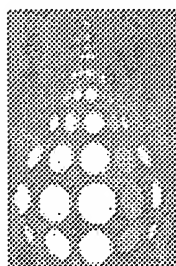
company profile:

"HIBLOW", our range of original Techno Takatsuki electromagnetic diaphragm air pumps, was created in 1976 as a result of development.

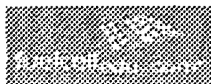
Purpose of company: Production of electro-motors, production and sales of air pumps, Employees : 240

Site Map www.vacuum-guide.com

Attachment #3 10602236



fuelcellstore.com

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Item Number	59:
Unit Price	\$1:



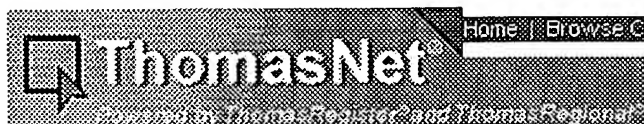
Additional Information: Miniature Pump, works well as a load for fuel cells producing less than one volt. Pumps 1 pint per minute with a 12" high flow.

TECHNICAL SPECIFICATIONS

2.5 inches high 1 inch square base 1 pint per minute 12# high flow

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10602236



attachment #2

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3905 Whitney Pl.

Duluth, GA 30096

Phone: 770-476-4040 | **Fax:** 770-623-1465<http://www.mrm-international.com>**Pumps: Miniature Information**

Miniature Pumps & Compressors. Vacuum & Medical **Pumps**, **Miniature** Configurations. Diaphragm **Pumps**. Flowrates To 70 L/Min. Pressure To 24 Psi & Vacuum To 24 Inches Mercury. Rotary Vane **Pumps** To 0.8 L/Min., 1 Psi Pressure & 1.9 In Hg Vacuum

- <http://www.schwarzer-pumps.com>

Company Information

Specialize In **Miniature** Compressors & Vacuum **Pumps** Used In The Analytical Industries, Medical Industry, Laboratory & Household Products. Diaphragm **Pumps** Can Be Supplied With Flowrates Up To 70 L/Min., Pressure Up To 24 Psi & Vacuum To 24 Inches Of Mercury. An Extremely Small Rotary Vane **Pump** Can Reach Up To 0.8 L/Min., 1 Psi Pressure & 1.9 In Hg Vacuum

Employees: 50-99**Activity:** Manufacturer**Year Company Founded:** 1972**Export Markets:** Latin America/Caribbean, Western Europe, Africa, Middle East, Asia, Australia, Europe, Canada, Mexico➤ [Contact MRM International](#) **[Send ThomasNet your feedback](#)**

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